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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/513,912	02/25/2000	Pulin R. Patel	067191.0108	7466

7590 11/04/2003

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EXAMINER
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FERRIS, DERRICK W

ART UNIT	PAPER NUMBER
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2663

DATE MAILED: 11/04/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/513,912

Applicant(s)

PATEL ET AL.

Examiner

Derrick W. Ferris

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-132 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-132 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 February 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to Amendment*

1. **Claims 1-132** as amended are still in consideration for this application. Applicant has amended claims 1, 39, 44, 49, 51, and 128.
2. Examiner **withdraws** the 112-second paragraph rejection for Office action filed 07/02/2003. Examiner thanks applicant for making the necessary corrections to clarify the recited claimed subject matter and thus withdraws the rejection.
3. Examiner does **not withdraw** the obviousness rejection to *Puuskari* for Office action filed 07/02/2003. At issue for claims 1, 51, and 128 is the newly amended limitation “each packet including a flow identifier uniquely identifying a flow”. Examiner respectfully disagrees with application’s comments. Support for applicant’s amendment is found, inter alia, on page 25, lines 1-20 of applicant’s specification. From the above-cited passage in applicant’s specification, examiner notes a reasonable but broad interpretation of “unique identifying flow”. *Puuskari* teaches a dynamic packet-based quality of service (QoS) mechanism that is provided within a “transmission tunnel” defined by a more static packet data protocol context (PDP context). More particularly, each data packet is arranged to carry at least one QoS parameter, and the scheduling and policing of the transmission of the data packets is made in packet by packet basis according to this QoS information in the packet, while, however, within the limits set by the PDP context (see page 5, lines 27-35). Specifically, *Puuskari* teaches the QoS information associated with each data packet includes at least priority information and traffic type information as well as optionally including reliability information (e.g., see page 6, lines 9-24 and page 15, lines 3-13). Also associated with a packet is other information used to route a

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packet through a network such as the NSAPI and TLLI as disclosed on page 13, lines 13-34. Also see page 15, lines 15-31 with respect to SNDCP and GTP headers used to carry (i.e., transmit) the QoS information (i.e., in reference to page 7, line 34 – page 8, line 3). Finally, information with respect to an application flow may also be tracked as disclosed on page 23, lines 1-4. Thus examiner notes enough information is disclosed for a reasonable but broad interpretation of “uniquely identifying a flow” for a packet. For the remainder of the independent claims at issue (i.e., claims 101, 111, 120, 123, and 131), examiner has further clarified where examples of the recited limitations are taught using the cited prior art (see rejection(s) below).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1-6, 8-11, 15-16, 23-33, 35-37, 39, 42-44, 48-50, 51-56, 58-61, 63-66, 73-83, 85-87, 89, 92-94, 98-103, 108-109, 111-113, 117-120, 123, and 126-132** are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/48310 to *Puuskari*.

As to **claims 1, 51 and 128**, applicant in general claims a method of grouping packets with a common flow identifier using a generic concept of virtual groups. In general, examiner notes that virtual groups are nothing more than an aggregation of flows having one or more similar characteristic as defined, inter alia, in applicant's specification on page 21, lines 8-18. Examiner has further construed the term “discrete

transmission resources” to equate to at least individual treatment applied to any suitable set of the flow aggregates (in general) [page 21, lines 16-17]. *Puuskari* discloses a dynamic packet-base quality of service (QoS) mechanism provided within a “transmission tunnel” defined by a more static packet data protocol context (PDP context). More particularly, each data packet is arranged to carry at least one QoS parameter (e.g., a flow identifier), and the scheduling and the policing of the transmission of the data packets is made on a packet by packet basis according to this QoS information in the packets, while, however, within limits set by the PDP context [page 5, lines 27-34]. This concept enables dedicated QoS profiles (i.e., virtual groups).

Examiner notes the reference may not clearly recite queuing each packet in an assigned QoS Profile (i.e., virtual group) for transmission. Examiner, however, notes that it would have been either inherent or obvious to a skilled artisan prior to applicant’s invention to queue packets in general for the purpose or motivation of scheduling. As further support, *Puuskari* discloses using PDP queues in general thus teaching a motivation to queue packets for the purpose of scheduling [e.g., page 2, line 20].

As to **claims 2 and 52**, *Puuskari* discloses associating various information in packets with respect to QoS including at least priority and traffic type information [e.g., page 6, lines 9-24]. This information is further used to assign packets to virtual groups.

As to **claims 3 and 53**, *Puuskari* discloses using a label in general for both diffserv and intserv packets (i.e., each type of packet has a label in general depending on the type of service) [e.g., page 15, lines 15-31; page 23].

As to **claims 4, 5, 54, and 55**, see the same reasoning behind the rejection for claim 2.

As to **claims 6 and 56**, see the reasoning behind the rejection for claim 3.

As to **claims 8-10 and 58-60**, *Puuskari* discloses using both the source and destination address in a packet which is a location-specific flow identifier [e.g., page 23]. Specifically examiner notes that a header in general is used [page 5, lines 27-35; page 14, lines 26-35; page 15, lines 15-31] such that it would have been obvious to a skilled artisan prior to applicant's invention to use all the fields in an IP header including a source address, destination address, port address, and application type.

As to **claims 11 and 61**, see the reasoning behind the rejection for claim 3.

As to **claims 15 and 65**, see the reasoning behind the rejection for claim 2.

As to **claims 16 and 66**, see the reasoning behind the rejection for claim 3.

As to **claims 23 and 73**, see the reasoning behind the rejection for claim 2.

As to **claims 24 and 74**, not clearly disclosed by the reference is an SLA agreement per se. However, *Puuskari* discloses a reasonable but broad interpretation of an SLA in the form of a user agreement as is known in the art for user QoS. Thus using a reasonable but broad interpretation, an SLA agreement is taught by *Puuskari*.

As to **claims 25-29, 75-79**, *Puuskari* discloses associating QoS information with priority information and traffic type [page 6] along with QoS profile information [page 17] which includes peak rate, subscriber rate, maximum burst size, packet size, and delay threshold.

As to **claims 30 and 80**, see the reasoning behind the rejection for claim 2.

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As to **claims 31, 32, 81 and 82**, see the reasoning behind the rejection for claim 3.

As to **claims 33, 35, 83 and 85**, *Puuskari* discloses using a layered approach as is known in the art such that either a multi-slot/multi-code or multi-mode indicator (e.g., scheduling determines which slots packets will be transmitted as is well known in the art).

As to **claims 36 and 86**, *Puuskari* discloses a dynamic method.

As to **claims 37 and 87**, *Puuskari* discloses defining the flows to account for the impact of flows (i.e., deal with congestion) [e.g., page 6].

As to **claims 39 and 89**, see the reasoning behind the rejection for claim 2.

As to **claims 42 and 92**, *Puuskari* discloses “metering” packets by discarding packets in a network that do not conform with QoS as is known in the art [e.g., page 6, lines 9-24; page 21, lines 33-35; page 22, line 1].

As to **claims 43, 44, 48, 93, 94, 98 and 108**, *Puuskari* discloses controlling congestion based on available bandwidth [e.g., page 6, lines 9-24].

As to **claims 49-50, 99-100, 120 and 123**, *Puuskari* discloses adjusting for QoS dynamically (i.e., dynamically assigning a subsequent packet to a new group based on new attributes for the flow) [e.g., page 6, lines 3-8]. As the service may change, examiner notes that it would have been obvious to a skilled artisan prior to applicant's invention to also move the packet into another queue since each queue is based on a different level of service (e.g., see page 2, lines 17-24). Examiner furthermore points that no clear reference is given with respect to a first and/or second location such that

examiner has taken a reasonable but broad interpretation of the claimed subject matter with respect to a first and second location.

As to **claims 63, 118 and 126**, it would have been obvious to a skilled artisan prior to applicant's invention to implement the system as disclosed by *Puuskari* in software where the motivation is an obvious design consideration/choice.

As to **claims 64, 119 and 127**, it would have been obvious to a skilled artisan prior to applicant's invention to use a processor in general for implementing both a dynamic flow manager and virtual groups. As mentioned above, the general functionality of each is taught by *Puuskar* where the functionality is implement in either software or hardware using a processor in general (used to control the hardware or software as is known in the art).

As to **claims 101, and 111**, *Puuskar* discloses generating dynamic congestion control parameters for a wireless traffic queue based on a status of the wireless network through the use of QoS parameters as disclosed throughout the specification (e.g., see page 6, lines 9-11 and page 7, lines 7-8). *Puuskar* also discloses dropping excess packets destined for a wireless traffic queue based on dynamic congestion control parameters (as mentioned in the rejection for claim 44).

Not clearly disclosed in the reference is "adding" the remaining wireless packets destined for the wireless traffic queue. Examiner notes that it would have been obvious to a skilled artisan prior to applicant's invention to also handle the remaining wireless packets in general. Specifically, *Puuskar* discloses handling packets in general that are not discarded [e.g., see page 6, lines 9-24]. Since these packets are not dropped there is a



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motivation to add the remaining packets so that the scheduler handles the packets. One motivation might be to support QoS as is known in the art and as taught by *Puuskar* for a virtual group.

As to **claims 102, 103, 112, and 113**, examiner notes that the services setup using Intserv uses available bandwidth network since the connection will not be established (i.e., reserved) if not enough bandwidth is present in the network [e.g., see RSVP on page 23].

As to **claim 109**, *Puuskar* provides QoS for real-time services [e.g., page 6, lines 9-24].

As to **claim 117**, *Puuskar* discloses service queues in general for more than one QoS class, thus a plurality of service queues is disclosed along with congestion control in general.

As to **claim 129**, see the rejection for claim 3.

As to **claim 130**, see the rejection for claim 43.

As to **claim 131**, see the combined rejection for claim 42 and 44.

As to **claim 132**, see the rejection for claim 123.

6. **Claims 7, 34, 57 and 84** are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/48310 to *Puuskari* in further view of U.S. Patent No. 6,327,254 to *Chuah*.

As to **claims 7, 34, 57 and 84**, *Puuskari* is silent or deficient to using a power level indicator as part of a QoS characteristic. *Puuskari* discloses using characteristics in general to group packets for QoS. Thus examiner notes that it would have been either inherent or obvious to a skilled artisan prior to applicant's invention to use a power level

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as part of QoS since a power level can be represented as part of a packet as is known in the art. *Chuah* discloses using a power indicator in general (see figure 4 and 6b) as part of a packet thus providing a motivation in general for using a power level indicator as part of a QoS characteristic.

7. **Claims 12-14, 17-18, 20-22, 45, 62, 67-68, 70-72, 95, 104, 107, 114** are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/48310 to *Puuskari* in further view of “Quasi-Source Resource Allocation with Interference Avoidance for Fixed Wireless Systems” by *Chawla et al.* (“*Chawla*”) and in further view of U.S. Patent No. 6,021,309 to *Sherman et al.* (“*Sherman*”).

As to **claims 12-14, 17-18, 20-22, 45, 62, 67-68, 70-72, 95, 104, 107, 114**, *Puuskari* is generally silent to the physical attributes of the wireless system (i.e., the sector placement, latitude and longitude, specific beam width within a sector). Examiner notes that it would have been inherent or obvious to a skilled artisan to realize that physical attributes impact QoS in general. For example, *Chawla* discloses using beams to sector a cell as is known in the art. Examiner notes that a skilled artisan would also recognize that certain inherent latitude and longitude values will place the mobile within a specific sector of a cell. In another example, *Sherman* also discloses the general use of geographical-defined service areas along with a frequency re-use pattern (i.e., frequency plan).

8. **Claims 19 and 69** are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/48310 to *Puuskari* in view of U.S. Patent No. 5,987,326 to *Tiedemann, Jr. et al.*

As to **claims 19 and 69**, *Puuskari* is silent or deficient to performing a soft handoff as is known in the art for a wireless system in general. *Tiedemann* makes up for such a deficiency by disclosing how a soft handoff is performed and parameters needed to perform the handoff (e.g., see figure 3).

9. **Claims 38, 40, 88 and 90** are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/48310 to *Puuskari* in view of U.S. Patent No. 5,926,458 to *Yin*.

As to **claims 38, 40, 88 and 90**, *Puuskari* is silent or deficient to the type of buffering scheme deployed in a wireless system. Examiner notes that it would have been obvious to a skilled artisan prior to applicant's invention to use a common memory (in general) consisting of buffers/queues for each virtual group. As support, *Yin* discloses a virtual groups consisting of buffers which form a common memory, thus *Yin* provides a motivation for using a common memory in general (see figure 2 for a common outgoing buffer).

10. **Claims 41, 91, 121, 122, 124 and 125** are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/48310 to *Puuskari* in view of U.S. Patent No. 5,926,458 to *Yin* in further view of "Service Scheduling for General Packet Radio Service Classes" to *Pang et al.* ("*Pang*").

As to **claims 41, 91, 121, 122, 124 and 125**, both *Puuskari* and *Yin* are silent to using a FIFO buffer in general. Examiner notes that it would have been obvious to a skilled artisan prior to applicant's invention to use a FIFO buffer with QoS queuing. *Pang* provides a motivation by disclosing that FIFO queuing for QoS is used when

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scheduling is concerned (see section II (a) on page 1230). Examiner also notes a reasonable but broad interpretation of queue identifier.

11. **Claims 46-47, 96, 97, 105, 106, 110, 115, and 116** are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/48310 to *Puuskari* in view of “Quality of service management functions in 3<sup>rd</sup> generation mobile telecommunication networks” to *Kalliokulju*.

As to **claims 46-47, 96, 97, 105, 106, 110, 115, and 116**, it may not be clear from *Puuskari* that available bandwidth is based on air-resource estimates, pricing strategy information, or historical usage information respectfully. Examiner notes that it would have been obvious to a skilled artisan prior to applicant’s invention to include various available bandwidth indicators including air-resource estimates, pricing strategy information, or historical usage. *Kalliokulju* provides further motivation by disclosing various available bandwidth indications in general including air-resource estimates, pricing strategy, and historical usage information (e.g., page 1285).

### ***Conclusion***

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derrick W. Ferris whose telephone number is (703) 305-4225.

The examiner can normally be reached on M-F 9 A.M. - 4:30 P.M. E.S.T.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on (703) 308-5340. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 305-3900.

Derrick W. Ferris  
Examiner  
Art Unit 2663

  
DWF

KWANG BIN YAO  
PRIMARY EXAMINER

